

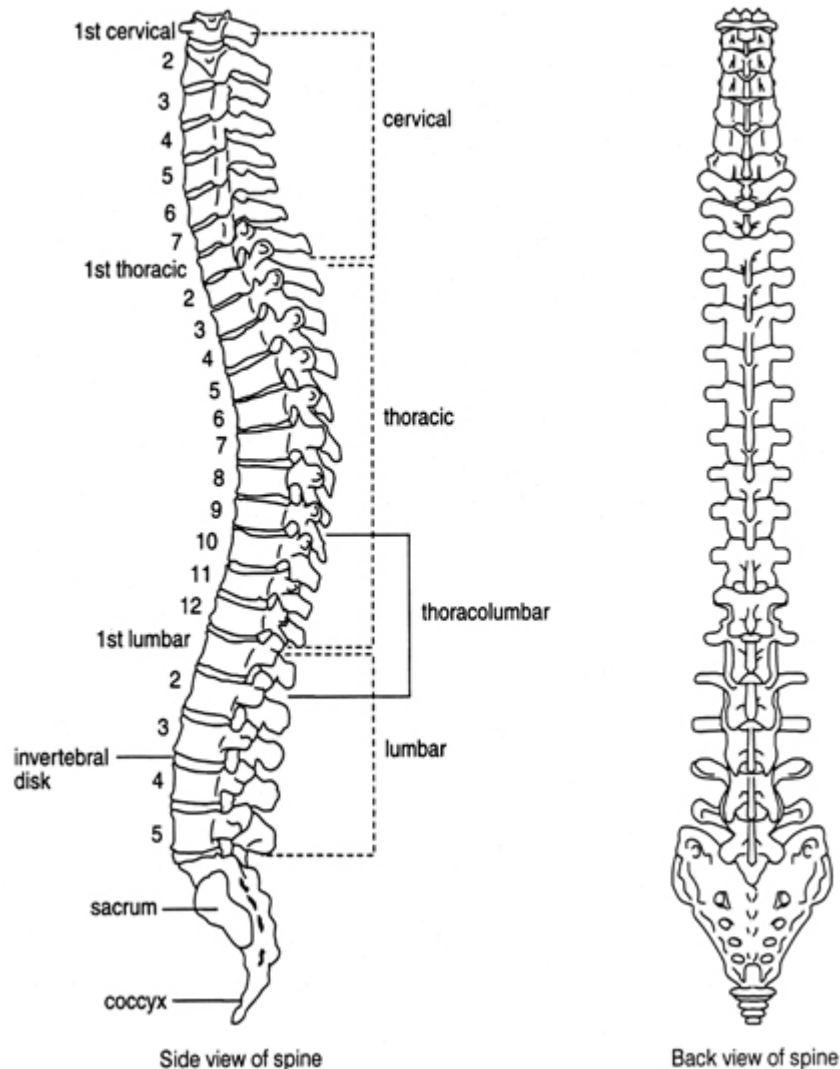


Overview

Points To Remember About Ankylosing Spondylitis

- Ankylosing spondylitis (AS) is arthritis that affects the spine.
- AS often involves redness, heat, swelling, and pain in the spine or where the bottom of the spine joins the pelvic bone.
- AS may also affect the shoulders, ribs, hips, knees, feet, eyes, and bowel.
- Treatments for AS typically include medicines, exercise, and proper diet. Surgery may be recommended in some cases.
- See your doctor often and follow the treatment plan your doctor gave you.

Normal Spine



Side and back views of the spine.

Ankylosing spondylitis is a type of arthritis that affects the joints in the spine. Its name comes from the Greek words “ankylos,” meaning stiffening of a joint, and “spondylo,” meaning vertebrae (small bones in the backbone).

Ankylosing spondylitis belongs to a group of disorders that are associated with swelling of the joints and spine. Although these disorders have similarities, they also have features that distinguish them from one another. The hallmark of ankylosing spondylitis is swelling of the joint where the bottom vertebra of the spine (sacrum) joins the pelvic bone (ilium).

In some people, ankylosing spondylitis can also affect the shoulders, ribs, hips, knees, and feet. It can also affect areas where the tendons and ligaments attach to the bones. It is possible that it can affect other organs, such as the eyes, bowel, and—more rarely—the heart and lungs.

Many people with ankylosing spondylitis have mild episodes of back pain that come and go. But others have severe, ongoing pain with loss of flexibility in the spine. In the most severe cases,

long-term swelling causes two or more bones of the spine to fuse. If the rib cage is affected, you may have trouble taking a deep breath.

Who Gets

Ankylosing spondylitis typically begins when you are a teen or young adult. Once you develop the disease, it will affect you for the rest of your life. Men are more likely to develop ankylosing spondylitis than are women.

The main gene associated with ankylosing spondylitis is called *HLA-B27*. If you have ankylosing spondylitis, then you probably have this gene. But this does not mean you will get the disease if you have the gene; fewer than 1 of 20 people with *HLA-B27* gets ankylosing spondylitis. Scientists recently discovered two more genes (*IL23R* and *ERAP1*) that, along with *HLA-B27*, increase your risk for ankylosing spondylitis.

Causes

No one knows what causes ankylosing spondylitis, but it is likely that both genes and environment play a role. The main gene associated with ankylosing spondylitis is called *HLA-B27*. If you have ankylosing spondylitis, then you probably have this gene. But this does not mean you will get the disease if you have the gene; fewer than 1 of 20 people with *HLA-B27* gets ankylosing spondylitis. Scientists recently discovered two more genes (*IL23R* and *ERAP1*) that, along with *HLA-B27*, increase your risk for ankylosing spondylitis.

Diagnosis

Your doctor will give you a physical exam and ask you about your medical history in order to diagnose you with ankylosing spondylitis. Bone/joint scans and lab tests may help confirm a diagnosis.

Medical history

Your doctor will probably ask you the following questions during a medical history:

- How long have you had pain?
- Where is the pain in your back or neck? Are other joints affected?
- Is back pain better with exercise and worse after inactivity, such as when you first get up in the morning?
- Do you have other problems, such as eye problems or fatigue?
- Does anyone in your family have back problems or arthritis?
- Have you recently suffered from a stomach upset or diarrhea?

- Do you have any skin rashes such as psoriasis?

Physical exam

During the physical exam, your doctor will look for symptoms of ankylosing spondylitis. These include pain in the spine, pelvis, joint between the pelvis and spine, heels, or chest. Your doctor may ask you to move and bend in different directions. This is to check the flexibility of your spine. You will also be asked to breathe deeply. This is to check for rib stiffness caused by continued swelling of the joints where the ribs attach to the spine.

Bone and joint scans

Your doctor may confirm you have ankylosing spondylitis by taking pictures of your spine and of the joint between your spine and pelvic bone. Pictures are taken using x-rays or magnetic resonance imaging (MRI), which uses magnets and radio waves (not radiation). However, you may have the disease for years before changes show on x-rays. MRI may allow for earlier diagnosis, because it can show damage to soft tissues and bone before it can be seen on an x-ray. Both tests may also be used to see if the disease worsens.

Lab tests

Your blood may be tested for the *HLA-B27* gene, which is present in most people with ankylosing spondylitis. The test is less useful if you are African American or from some Mediterranean countries, since you are less likely to have the gene even if you do have ankylosing spondylitis. The gene is also found in many people who do not have ankylosing spondylitis, and will never get it. Still, having the gene is one more indicator you have ankylosing spondylitis, when you also have symptoms and x-ray evidence of the disease.

Treatment

There is no cure for ankylosing spondylitis, but some treatments relieve symptoms may possibly prevent the disease from getting worse. In most cases, treatment involves a combination of medication, exercise, and self-help measures. In some cases, surgery may be used to repair some of the joint damage caused by the disease.

You should work with your doctor to find the safest and most effective medications for you, which will likely include one or more of the following:

Nonsteroidal anti-inflammatory drugs (NSAIDs)

NSAIDs relieve pain and inflammation, and are commonly used to treat ankylosing spondylitis. Examples include aspirin, ibuprofen, and naproxen.

Some NSAIDs are available over the counter, but others are available only with a prescription.

NSAIDs can have side effects, and some people seem to respond better to one NSAID than

another. You should see your doctor on a regular basis if you take NSAIDs over a long period of time.

Corticosteroids

These strong inflammation-fighting drugs are similar to the cortisone made by your body. If NSAIDs alone do not control your joint swelling, your doctor may inject corticosteroids directly into the affected joints to bring quick but temporary relief. Injections may be given to the hip joint, knee joint, or joint between the spine and pelvic bone. Injections are not given in the spine.

Disease-modifying antirheumatic drugs (DMARDs)

These drugs work in different ways. The most common DMARDs for ankylosing spondylitis are sulfasalazine and methotrexate.

Biologic agents

These medications block proteins involved in your body's inflammatory response. Several biologics are approved by the Food and Drug Administration (FDA) for treating ankylosing spondylitis. These drugs are either injected or given intravenously (IV) and are often effective for ankylosing spondylitis when other treatments are not.

Surgery

Total joint replacement may be an option if ankylosing spondylitis causes severe joint damage that makes it difficult to do your daily activities. Your surgeon will remove the damaged joint and replace it with a man-made one made of metals, plastics, and/or ceramic materials. The most commonly replaced joints are the knee and hip.

There is also surgery to straighten the spine, if it has fused into a curved-forward position. This is generally considered a high-risk procedure, and it is only done in very rare cases. A surgeon who is highly experienced in the procedure will cut through the spine so that it can be placed into a straighter up/down position. Hardware may be needed to hold the spine in its new position while it heals.

Who Treats

The diagnosis of ankylosing spondylitis is often made by a rheumatologist, a doctor trained to diagnose and treat arthritis. However, because ankylosing spondylitis can affect different parts of your body, you may need to see several different types of doctors for treatment, including:

- Ophthalmologist, who treats eye disease.
- Gastroenterologist, who treats bowel disease.

- Physiatrist, a medical doctor who specializes in physical medicine and rehabilitation.
- Physical therapist or rehabilitation specialist, who supervises stretching and exercise programs.

You and your doctors may find it helpful to select one doctor to manage the overall treatment plan.

Living With

- **Exercise:** Besides seeing your doctor regularly and following your treatment plan, staying active is probably the best thing you can do for ankylosing spondylitis. Regular exercise can help relieve pain, improve posture, and maintain flexibility. Before beginning an exercise program, speak with your doctor or physical therapist about designing a program that's right for you. Some helpful exercises include:
 - Strengthening exercises, performed with weights or done by tightening muscles without moving the joints, build the muscles around your painful joints to better support them. Exercises that don't require joint movement can be done even when your joints are painful and inflamed.
 - You should gently straighten and bend your joints as far as they will comfortably go. This will improve movement flexibility and reduce stiffness in the painful joint. If the spine is painful and/or inflamed, exercises to stretch and extend the back can be helpful in preventing long-term disability.
 - You may find it helpful to exercise in water.
- **Diet:** A healthy diet is good for everyone, and it may be very helpful if you have ankylosing spondylitis. There is no specific diet for people with ankylosing spondylitis, but keeping a healthy weight is important. It reduces stress on painful joints. Omega-3 fatty acids, found in coldwater fish (such as tuna and salmon), flax seeds, and walnuts, might reduce disease activity. This is still being studied.
- **Posture:** Another important thing you can do for yourself is to practice good posture. A good test for posture is to check yourself in a mirror. First, stand with a full-length mirror to your side and, if possible, turn your head to look at your profile. Next, imagine you have dropped a weighted string from the top of your head to the soles of your feet. Where does the string fall? If your posture is good, it should pass through your earlobe, the front of your shoulder, the center of your hip, behind your kneecap, and in front of your anklebone. If you are not standing that way already, practice holding your body that way in front of a mirror until you know well how it feels. Practicing good posture can help you avoid some of the complications that can occur with ankylosing spondylitis.

Disease Course

The course of ankylosing spondylitis varies from person to person. Some people will have only mild episodes of back pain that come and go, while others will have chronic, severe back pain. In almost all cases, there are short-term, painful episodes and remissions, or periods of time

when the pain lessens.

Swelling can cause stiffness in the spine and the joint between the spine and pelvic bone. Over time, bony outgrowths can develop that cause the small bones in the spine to grow together, or fuse. Fusion can also stiffen the rib cage, which would make it difficult to take a deep breath.

Ankylosing spondylitis is more likely to affect your ability to function if you have had the disease for at least 20 years, a physically demanding job, other health problems, or smoked. You will tend to have less severe limitations from the disease if you have a higher level of education and a history of ankylosing spondylitis in the family.

You are more likely to have severe joint damage if you got the disease at an earlier age, are a man, or a current smoker. A genetic marker called DRB1*0801 seems to protect against severe spine damage.

Research Progress

Genetic research has found the following:

- Approximately 80 percent of people with ankylosing spondylitis have the *HLA-B27* gene. However, only one to five percent of people who have *HLA-B27* develop ankylosing spondylitis. This means that there must be other factors contributing to the disease.
- A genetic marker called DRB1*0801 seems to protect against severe spine damage.
- Research on two genes, *ERAP1* and *IL23R*, is shedding light on how ankylosing spondylitis develops. A better understanding of the pathways involved in ankylosing spondylitis could lead to better treatments. These findings may also help in developing a blood test to predict ankylosing spondylitis risk or aid in early diagnosis.
- Four genetic regions have been uncovered that are associated with risk for ankylosing spondylitis.

Researchers are also investigating the inflammation and immune system processes that underlie ankylosing spondylitis. In addition, researchers are exploring how the environment impacts the course of the disease.

Scientists are also examining whether new drugs can prevent or reduce spinal fusion in ankylosing spondylitis.

Related Resources

U.S. Food and Drug Administration

Toll free: 888-INFO-FDA (888-463-6332)

Website: <https://www.fda.gov>

Drugs@FDA at <https://www.accessdata.fda.gov/scripts/cder/daf>. Drugs@FDA is a searchable

catalog of FDA-approved drug products.

Centers for Disease Control and Prevention, National Center for Health Statistics

Website: <https://www.cdc.gov/nchs>

Spondylitis Association of America

Website: <https://www.spondylitis.org/>

Arthritis Foundation

Website: <https://www.arthritis.org>

If you need more information about available resources in your language or other languages, please visit our webpages below or contact the NIAMS Information Clearinghouse at NIAMSInfo@mail.nih.gov.

- [Asian Language Health Information](#)
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[Arthritis and Rheumatic Diseases fact sheet](#)

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